

Title (en)

MEMS ACOUSTIC TRANSDUCER WITH COMBFINGERED ELECTRODES AND CORRESPONDING MANUFACTURING PROCESS

Title (de)

AKUSTISCHER MEMS-WANDLER MIT KAMMFINGERELEKTRODEN UND ZUGEHÖRIGES HERSTELLUNGSVERFAHREN

Title (fr)

TRANSDUCTEUR ACOUSTIQUE À MEMS AYANT DES ÉLECTRODES EN FORME DE PEIGNE ET PROCÉDÉ DE FABRICATION CORRESPONDANT

Publication

EP 3247134 A1 20171122 (EN)

Application

EP 16206878 A 20161223

Priority

IT UA20163571 A 20160518

Abstract (en)

A MEMS acoustic transducer (20) provided with: a substrate (21) of semiconductor material, having a back surface (21b) and a front surface (21a) opposite with respect to a vertical direction (z); a first cavity (22) formed within the substrate (21), which extends from the back surface (21b) to the front surface (21a); a membrane (23) which is arranged at the upper surface (21a), suspended above the first cavity (22) and anchored along a perimeter thereof to the substrate (21); and a combfingered electrode arrangement (28) including a number of mobile electrodes (29) coupled to the membrane (23) and a number of fixed electrodes (30) coupled to the substrate (21) and facing respective mobile electrodes (29) for forming a sensing capacitor, wherein a deformation of the membrane (23) as a result of incident acoustic pressure waves causes a capacitive variation (#C) of the sensing capacitor. In particular, the combfingered electrode arrangement lies vertically with respect to the membrane (23) and extends parallel thereto.

IPC 8 full level

H04R 19/00 (2006.01); **H04R 31/00** (2006.01); **B81C 1/00** (2006.01)

CPC (source: CN EP US)

B81B 3/0021 (2013.01 - US); **B81C 1/00158** (2013.01 - US); **G01H 11/06** (2013.01 - US); **H04R 19/005** (2013.01 - CN EP US); **H04R 31/00** (2013.01 - CN EP US); **B81B 2201/0257** (2013.01 - US); **B81B 2203/0127** (2013.01 - US); **B81B 2203/0136** (2013.01 - US); **B81B 2203/0315** (2013.01 - US); **B81B 2203/04** (2013.01 - US); **B81B 2203/053** (2013.01 - US); **B81C 2201/0109** (2013.01 - US); **B81C 2201/0111** (2013.01 - US); **B81C 2201/0133** (2013.01 - US); **H04R 2201/003** (2013.01 - EP US); **H04R 2201/023** (2013.01 - US)

Citation (applicant)

- US 2010158279 A1 20100624 - CONTI SEBASTIANO [IT], et al
- US 2014197502 A1 20140717 - DEHE ALFONS [DE]

Citation (search report)

- [XAI] JP 2008259061 A 20081023 - MATSUSHITA ELECTRIC WORKS LTD
- [XAI] US 2015078590 A1 20150319 - DALEY MIKE [US], et al

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Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 3247134 A1 20171122; **EP 3247134 B1 20200701**; CN 107404697 A 20171128; CN 107404697 B 20200221; IT UA20163571 A1 20171118; US 10433068 B2 20191001; US 2017339494 A1 20171123

DOCDB simple family (application)

EP 16206878 A 20161223; CN 201611227014 A 20161227; IT UA20163571 A 20160518; US 201615365590 A 20161130